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Acquisition

**CIVIL ENGINEER RESEARCH,
DEVELOPMENT, AND ACQUISITION**

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This instruction implements AFPD 10-6, *Mission Needs and Operational Requirements*; AFPD 32-70, *Environmental Quality*; AFPD 61-1, *Management of Science and Technology*; and AFPD 63-1, *Acquisition System*, by providing guidance on identifying, validating, approving, prioritizing, and executing Air Force Civil Engineer research, development, and acquisition programs. **Attachment 1** is a glossary of abbreviations, acronyms, and terms used in this instruction.

Section A—Introduction

1. Background. This instruction:

- 1.1. Assigns responsibilities and shows users how to identify and coordinate civil engineer (Environmental Quality and Air Base Systems) research, development, and acquisition needs and projects to meet Air Force goals.
- 1.2. Delineates the process by which civil engineer research, development, and acquisition user needs are gathered, validated, organized, prioritized, and entered into the Air Force Technology Master Process.
 - 1.2.1. The Technology Master Process integrates the various technology planning, development, transition, application, and insertion efforts within Air Force Materiel Command (AFMC) into a single, integrated process.

2. Concept:

- 2.1. This instruction does not duplicate Federal, state, and local standards but provides major commands (MAJCOM) and other organizations with a framework for complying with these requirements according to Air Force policies.
- 2.2. MAJCOM two-letter offices document implementing guidance in their supplements to this instruction. MAJCOM supplements must identify the specific "actors" who have implementing responsibilities and document any "how to" guidance needed to comply with this instruction.

2.3. Objective. The overall objective of the process outlined in this instruction is to insert civil engineer user needs and projects into the research, development, and acquisition pipeline to support the Air Force mission.

3. Responsibilities:

3.1. Secretary of the Air Force (SAF) and Headquarters United States Air Force (HQ USAF):

3.1.1. Office of the Assistant Secretary of the Air Force for Acquisition (SAF/AQ): Manages Air Force research, development, and acquisition programs.

3.1.2. Office of the Assistant Secretary of the Air Force, Director for Science and Technology (SAF/AQT). Directs and manages the science and technology portion of the Air Force research, development, and acquisition program. Develops broad policy, guidance, and direction for Exploratory Development (6.2) and Advanced Technology Development (6.3A) requirements and projects. Serves as program element monitor for Air Force Basic Research (6.1), Exploratory Development (6.2), and Advanced Technology Development (6.3A) program elements. Tracks funding obligations and expenditures and advocates for science and technology resources.

3.1.3. Office of the Assistant Secretary of the Air Force, Director for Fighter, C2, and Weapons Programs (SAF/AQP). Directs and manages the Demonstration/Validation, Engineering and Manufacturing Development, and acquisition portions of the Air Force research, development, and acquisition program. Develops broad policy, guidance, and direction for Demonstration/Validation (6.3B) and Engineering and Manufacturing Development (6.4) requirements and projects. Serves as program element monitor for Air Force for Demonstration/Validation (6.3B) and Engineering and Manufacturing Development (6.4) program elements. Generates program management directives, tracks funding obligations and expenditures, and advocates for 6.3B and 6.4 resources.

3.1.4. The Civil Engineer, HQ USAF (HQ USAF/CE). Oversees, develops policy for, and advocates for civil engineer related research, development, and acquisition programs throughout the Air Force. Approves civil engineer research, development, and acquisition strategic plans.

3.1.5. Directorate of Environmental Quality (HQ USAF/CEV). Establishes Air Force goals and objectives for Environmental Quality research, development, and acquisition investment. Chairs the Environmental Quality Research, Development, and Acquisition Working Group. In conjunction with MAJCOMs, validates and establishes priority order for Environmental Quality research, development, and acquisition needs. Passes prioritized needs to the Environmental Quality Technology Planning Integrated Product Team. Receives proposed projects from the Technology Planning Integrated Product Team and, in conjunction with the MAJCOMs, prioritizes the projects and passes them back to the Technology Planning Integrated Product Team for input to the Environmental Quality Research, Development, and Acquisition Strategic Plan. Ensures environmental operational requirements identified by the MAJCOMs are consistent with Air Force corporate goals. Provides management oversight for execution of the Environmental Quality Research, Development, and Acquisition Strategic Plan. Submits Air Force environmental requirements for incorporation into the Tri-Service Environmental Quality Research and Development Strategic Plan and other non-Air Force Environmental Quality research and development efforts (e.g., the Strategic Environmental Research and Development Program). Advo-

cates Environmental Quality research, development, and acquisition programs through the Air Force Resource Allocation Process.

3.1.6. Directorate of Operations and Maintenance (HQ USAF/CEO). Establishes Air Force goals and objectives for Air Base Systems research, development, and acquisition investment. Chairs the Air Base Systems Working Group. In conjunction with MAJCOMs, validates and establishes priority order for Air Base Systems research, development, and acquisition needs. Passes prioritized needs to the Air Base Systems Technology Planning Integrated Product Team. Receives proposed projects from the Technology Planning Integrated Product Team and, in conjunction with the MAJCOMs, prioritizes the projects and passes them back to the Technology Planning Integrated Product Team for input to the Air Base Systems Strategic Plan. Submits Air Force Air Base Systems requirements for incorporation into other tri-service research and development planning efforts. Ensures Air Base Systems operational requirements identified by the MAJCOMs are consistent with Air Force corporate goals. Provides management oversight for execution of the Air Base Systems Strategic Plan. Advocates Air Base Systems research, development, and acquisition programs through the Air Force Resource Allocation Process.

3.1.7. Air Force Directorate of Operational Requirements (HQ USAF/XOR). Serves as the executive agency for the Deputy Chief of Staff, Plans and Operations (HQ USAF/XO) for managing Air Force-wide mission needs and operational requirements that may result in research, development, test and evaluation and procurement appropriations. Articulates mission deficiencies and needs for operating commands. Manages the HQ USAF mission needs statement and operational requirements document processes which are governed by the Department of Defense (DoD) 5000-series publications and implemented by AFI 10-601, *Mission Needs and Operational Requirements Guidance and Procedures*.

3.2. Field Operating Agencies (FOA):

3.2.1. Air Force Center for Environmental Excellence (AFCEE). Solicits user environmental needs. Reviews user needs and determines whether a solution exists. Provides users with information on existing solutions. Compiles and maintains a master listing of user needs to be considered by the Environmental Quality Research, Development, and Acquisition Working Group. Provides staff support to the Environmental Quality Research, Development, and Acquisition Working Group.

3.2.2. Air Force Civil Engineer Support Agency (AFCESA). Solicits user Air Base Systems needs. Reviews user needs and determines whether a solution exists. Provides users with information on existing solutions. Compiles and maintains a master listing of user needs to be considered by the Air Base Systems Working Group. Provides staff support to the Air Base Systems Working Group.

3.3. MAJCOM Responsibilities. Broad responsibilities are assigned only to MAJCOM two-letter office functional areas to increase flexibility at each MAJCOM for implementing this instruction. All references to MAJCOMs in this instruction include the Air National Guard Readiness Center (ANGRC) and other agencies designated as "MAJCOM equivalent" by HQ USAF.

3.3.1. MAJCOM Civil Engineers. Serve as command focal points for civil engineer operational requirements and research, development, and acquisition needs. Develop supporting directives to implement this instruction. Solicit base-level input. Ensure command civil engineer operational requirements are identified, documented, prioritized, and advocated for insertion into the Technol-

ogy Master Process. In accordance with the procedures outlined in AFI 10-601 write the required mission needs statement and operational requirements document as projects progress through the process. Ensure needs are included in appropriate Mission Area Plans. Sit as voting members of the Environmental Quality Research, Development, and Acquisition Working Group and Air Base Systems Working Group.

3.3.2. Air Combat Command. Budgets for Air Base Operability and Chemical and Biological Defense programs in Demonstration/Validation (6.3B), Engineering and Manufacturing Development (6.4), and fielding (appropriation 3080).

3.3.3. Air Force Materiel Command. Budgets for civil engineer science and technology (6.1, 6.2 and 6.3A) effort and non-Air Base Operability and non-Chemical and Biological Defense programs through Demonstration/Validation (6.3B), Engineering and Manufacturing Development (6.4), and fielding (appropriation 3080).

3.4. Other Organizations:

3.4.1. Human Systems Center Directorate of Plans, Requirements, and Engineering (HSC/XR). Chairs the Environmental Quality Technology Planning Integrated Product Team. Receives prioritized user-generated Environmental Quality research and development needs from the Environmental Quality Research, Development, and Acquisition Working Group. Oversees the conversion of needs to projects through the Technology Master Process. Provides proposed project listing to AFCEE for consideration by the Environmental Quality Research, Development, and Acquisition Working Group. Receives prioritized projects from the Working Group for input to the Environmental Quality Research, Development, and Acquisition Strategic Plan. Produces the Strategic Plan. Manages research, development, and acquisition programs through Demonstration/Validation (6.3B), Engineering and Manufacturing Development (6.4), and fielding. Identifies budget disconnects for 6.2 through 6.4 and 3080 programs to HQ AFMC for inclusion in the AFMC Program Objective Memorandum.

3.4.2. Aeronautical Systems Center, Range and Air Base Systems Program Office (ASC/YO). Chairs the Air Base Systems Technology Planning Integrated Product Team. Receives prioritized user-generated Air Base Systems research and development needs from the Air Base Systems Working Group. Oversees the conversion of needs to projects through the Technology Master Process. Provides proposed project listing to AFCEA for consideration by the Air Base Systems Working Group. Receives prioritized projects from the Working Group for input to the Air Base Systems Strategic Plan. Produces the Strategic Plan. Manages research, development, and acquisition programs through Demonstration/Validation (6.3B), Engineering and Manufacturing Development (6.4), and fielding. Identifies budget disconnects for 6.2 through 6.4 and 3080 programs to HQ AFMC or HQ ACC, as applicable, for inclusion in their Program Objective Memorandum.

3.4.3. Armstrong Lab (AL). Executes Environmental Quality science and technology (6.2 and 6.3A) effort. Produces the Environmental Quality Research, Development, and Acquisition Technology Transition Plans which formally define transition criteria for completed Advanced Technology Development (6.3A) projects to HSC/XR for Demonstration/Validation (6.3B), Engineering and Manufacturing Development (6.4) and fielding. Identifies science and technology budget disconnects for HSC/XR to include in the AFMC Program Objective Memorandum.

3.4.4. Wright Lab (WL). Executes the Air Base Systems science and technology (6.2 and 6.3A) effort. Produces the Air Base Systems Technology Transition Plans which formally define transition criteria for completed Advanced Technology Development (6.3A) projects to ASC/YO for Demonstration/Validation (6.3B), Engineering and Manufacturing Development (6.4) and fielding. Identifies science and technology budget disconnects for ASC/YO to include in the AFMC Program Objective Memorandum.

Section B—Air Force Civil Engineer Research, Development, and Acquisition Process

4. Overview. Identification of civil engineer research, development, and acquisition requirements follows two separate but similar paths--the Environmental Quality Process and the Air Base Systems Process (see **Figure 1.** for more information). The Environmental Quality Process considers Pollution Prevention, Compliance, Conservation, and Restoration requirements. The Air Base Systems process considers all non-environmental civil engineer requirements (i.e., Air Base Operability, Chemical and Biological Defense, Fire Protection, Operability and Repair, and Survivability).

5. Environmental Quality Needs Process:

5.1. Needs Identification. By 1 May of each year, AFCEE will solicit needs from the MAJCOM Civil Engineers. AFCEE will review the MAJCOM submissions to determine whether solutions already exist. If a solution exists for the stated need, AFCEE will provide that information to the MAJCOM. Once reviewed and approved by the Environmental Quality Research, Development, and Acquisition Working Group and HQ USAF/CE (as outlined in paragraph **5.2.**), AFCEE will submit needs which require research and development to HSC/XR. HSC/XR and AL will review the needs to determine if a mission needs statement is required and notify AFCEE. If a mission needs statement is required, AFCEE will request the identifying command generate one and advise the MAJCOM to ensure the need is identified in the appropriate Mission Area Plan.

and submit the plan to HQ USAF/CE for final approval. In concert with publication of the Strategic Plan, HSC/XR will ensure necessary documentation is accomplished to identify funding disconnects to AFMC for inclusion in their Program Objective Memorandum. Program element monitors will revise program management directives as required to task the appropriate lab or system program office to accomplish the projects specified in the Strategic Plan.

5.4. Budgeting Process. After projects are prioritized, Armstrong Lab will identify Exploratory Development (6.2) and Engineering and Manufacturing Development (6.3A) budget disconnects to HSC/XR. HSC/XR will consolidate this input with their Demonstration/Validation (6.3B), Engineering and Manufacturing Development (6.4), and fielding (e.g., appropriation 3080) disconnects and submit funding disconnects for the entire Environmental Quality research, development, and acquisition effort to HQ AFMC for inclusion in their Program Objective Memorandum.

6. Air Base Systems Needs Process:

6.1. Needs Identification. By 1 May of each year, AFCESA will solicit needs from the MAJCOM Civil Engineers. AFCESA will review the MAJCOM submissions to determine whether solutions already exist. If a solution exists for the stated need, AFCESA will provide that information to the MAJCOM. Once reviewed and approved by the Air Base Systems Working Group and HQ USAF/CE (as outlined in paragraph 6.2.), AFCESA will submit needs which require research and development to ASC/YO. ASC/YO and WL will review the needs to determine if a mission needs statement is required and notify AFCESA. If a mission needs statement is required, AFCESA will request the identifying command generate one and advise the MAJCOM to ensure the need is identified in the appropriate Mission Area Plan.

6.2. Needs Prioritization. By 15 August of each year, HQ USAF/CEO will chair the Air Base Systems Working Group, with representation from all MAJCOM Civil Engineers, to prioritize existing and new Air Base Systems research and development needs. The MAJCOM Civil Engineer representatives (i.e., the users) are the sole voting members of this forum. The prioritized needs will then be reviewed and approved by HQ USAF/CE. The Air Base Systems Working Group then passes user prioritized and CE approved needs to the Technology Planning Integrated Product Team, chaired by ASC/YO. The Technology Planning Integrated Product Team inserts the needs into the AFMC Technology Master Process which converts the high ranked needs to projects.

6.3. Project Prioritization. The Air Base Systems Working Group will meet again by 1 December of each year to prioritize Air Base Systems projects. The MAJCOM Civil Engineer representatives (i.e. the users) are the sole voting members of this forum. Among the topics this meeting will address is the status of technology ready to transition from Advanced Technology Development (6.3A) to Demonstration/Validation (6.3B), with particular emphasis on funding status and disconnects that might exist as the projects transition. ASC/YO and WL will review transitioning projects to determine if an operational requirements document is required and notify AFCESA. If an operational requirements document is required, AFCESA will notify the requesting MAJCOM to staff one before 6.3B funds are spent. When the prioritized project list is final, ASC/YO (Technology Planning Integrated Product Team chair) will incorporate it into the Air Base Systems Strategic Plan and submit the plan to HQ USAF/CE for final approval. In concert with publication of the Strategic Plan, ASC/YO will ensure necessary documentation is accomplished to identify funding disconnects to HQ AFMC or HQ ACC, as applicable, for inclusion in their Program Objective Memorandum. Program element

monitors will revise program management directives as required to task the appropriate lab or system program office to accomplish the projects specified in the Strategic Plan.

6.4. Budgeting Process. After projects are prioritized, Wright Lab will identify Exploratory Development (6.2) and Engineering and Manufacturing Development (6.3A) budget disconnects to ASC/YO. ASC/YO will consolidate this input with their Demonstration/Validation (6.3B), Engineering and Manufacturing Development (6.4), and fielding (e.g., appropriation 3080) disconnects and submit funding disconnects for the entire Air Base Systems research, development, and acquisition effort to HQ AFMC or HQ ACC, as applicable, for inclusion in their Program Objective Memorandum.

JAMES E. McCARTHY,, Maj General, USAF
The Civil Engineer

Attachment 1

GLOSSARY OF REFERENCES, ABBREVIATIONS, ACRONYMS, AND TERMS

References

Program Action Directive 92-14, September 1992.

DoD Directive 5000.1, *Defense Acquisition*, February 23, 1991.

DoD Instruction 5000.2, *Defense Acquisition Management Policies and Procedures*, February 23, 1991, with Change 1.

Air Force Environmental Quality Research, Development, and Acquisition Strategic Plan, February 1993.

Air Force Instruction 10-601, *Mission Needs and Operational Requirements Guidance and Procedures*, February 16, 1993.

Abbreviations and Acronyms

ACC—Air Combat Command

AFCEE—Air Force Center for Environmental Excellence

AFCESA—Air Force Civil Engineer Support Agency

AFPD—Air Force Policy Directive

AFI—Air Force Instruction

AFMC—Air Force Materiel Command

AL—Armstrong Laboratory

C2—Command & Control

FOA—Field Operating Agency

MAJCOM—Major Command

OPR—Office of Primary Responsibility

POM—Program Objective Memorandum

SERDP—Strategic Environmental Research and Development Program

TPIPT—Technology Planning Integrated Product Team

WL—Wright Laboratory

Terms

Mission Area Plan (MAP)—A MAJCOM plan outlining an investment strategy that influences the programming, requirements, laboratory, and independent research and development process to support a specific mission area. The Mission Area Plan describes all aspects of the mission area leading to required future combat capability. It shows how, by following the plan, required Air Force combat capability can be achieved in support of national military objectives.

Mission Needs Statement (MNS)—A brief statement (no more than five typed pages) prepared by CINCs, HQ USAF, or operating MAJCOMs which identify and document mission deficiencies requiring materiel and/or software solutions.

Operational Requirements Document (ORD)—A document prepared by a using command describing pertinent quantitative and qualitative performance, operation, and support parameters, characteristics, and requirements for a specific weapon system. The ORD documents how a system will be operated, deployed, employed, and supported. The ORD also provides initial guidance for the implementing, supported, and participating commands and agencies.

Program Element (PE)—A portion of the Air Force budget identifying the organizational entities and resources (force, manpower, and cost, as applicable) needed to perform a particular Air Force mission or activity.

Program Element Monitor (PEM)—An individual appointed within Headquarters US Air Force to advocate the Air Force mission or activity covered by a program element through the Air Force Resource Allocation Process.

Program Management Directive (PMD)—The official Air Force document used to direct acquisition or modification responsibilities to MAJCOMs for the development, acquisition, or modification of a specific weapon system, subsystem, or piece of equipment. It is used throughout the acquisition cycle to terminate, initiate, or direct research for development of, production of, or modifications to a weapon system.

Technology Master Process (TMP)—A process integrating the various research, development, and acquisition, technology planning, development, transition, application, and insertion subprocesses within AFMC into a single end-to-end master process. The goal is to formulate, with full participation by all the stakeholders, an integrated list of technology development projects that is responsive to internal and external AFMC technology customers.

Technology Planning Integrated Product Team (TPIPT)—A team of users, laboratory technologists, development planners, logisticians, and system program office representatives that examines users' mission needs and identifies technologies to meet them.